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(21) International Application Number: PCT/CA97/00500 (22) International Filing Date: 11 July 1997 (11.07.97) (30) Priority Data: 60/021,607 12 July 1996 (12.07.96) US (71) Applicant (for all designated States except US): UNIVERSITY OF MANITOBA [CA/CA]; Winnipeg, Manitoba R3E 0W3 (CA). (72) Inventor; and (75) Inventor/Applicant (for US only): BRUNHAM, Robert, C. [CA/CA]; University of Manitoba, Dept. of Medical Microbiology, Room 543, 730 William Avenue, Winnipeg, Manitoba R3E 0W3 (CA). (74) Agent: STEWART, Michael, I.; Sim & McBurney, 6th floor, 330 University Avenue, Toronto, Ontario M5G 1R7 (US).			(81) Designated States: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, HU, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, ARIPO patent (GH, KE, LS, MW, SD, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG).  Published <i>With international search report.</i> <i>Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i>  (88) Date of publication of the international search report: 26 February 1998 (26.02.98)
(54) Title: DNA IMMUNIZATION AGAINST CHLAMYDIA INFECTION (57) Abstract  Nucleic acid, including DNA, immunization to generate a protective immune response in a host, including humans, to a major outer membrane protein of a strain of <i>Chlamydia</i> , preferably contains a nucleotide sequence encoding a MOMP or a MOMP fragment that generates antibodies that specifically react with MOMP and a promoter sequence operatively coupled to the first nucleotide sequence for expression of the MOMP in the host. The non-replicating vector may be formulated with a pharmaceutically-acceptable carrier for <i>in vivo</i> administration to the host.			

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# INTERNATIONAL SEARCH REPORT

Internat. Application No

PCT/CA 97/00500

A. CLASSIFICATION OF SUBJECT MATTER  
IPC 6 C12N15/31 A61K31/70 C07K14/295 //A61K39/118

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)  
IPC 6 C07K A61K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	EP 0 192 033 A (CHIRON CORPORATION) 27 August 1986 cited in the application see abstract and claims see page 7, line 33 - page 9, line 13 see page 11, line 8-33 see page 16, line 20 - page 18, line 22 ---	1-33
Y	DONNELLY ET AL.: "Protective efficacy of intramuscular immunization with naked DNA" ANNALS NEW YORK ACADEMY OF SCIENCES, vol. 772, 1995, pages 40-46, XP000576178 cited in the application see Introduction, Potential Clinical Uses and Conclusion --- -/--	1-33

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

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## INTERNATIONAL SEARCH REPORT

International Application No.

PCT/CA 97/00500

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	LOWRIE D B ET AL: "Towards a DNA vaccine against tuberculosis" VACCINE, vol. 12, no. 16, 1994, pages 1537-1540, XP002026338 cited in the application Introduction and page 1539, first column, last paragraph to second column, last paragraph ---	1-33
Y	LOPEZ-MACIA ET AL.: "Induction of Antibodies against Salmonella typhi OmpC Porin by naked DNA immunization" ANNALS OF THE NEW YORK ACADEMY OF SCIENCES, vol. 772, 1995, pages 285-288, XP002050031 see introduction and results and discussion ---	1-33
Y	ZHI QUAN XIANG: "Vaccination with a plasmid vector carrying the Rabies virus glycoprotein gene induces protective immunity against rabies virus" VIROLOGY, vol. 199, 1994, pages 132-140, XP002050032 see introduction and discussion ---	1-33
A	XIANG ET AL.: "Manipulation of the Immune Response to a plasmid-encoded viral antigen by coinoculation with plasmids expressing cytokines" IMMUNITY, vol. 2, February 1995, pages 129-135, XP000670098 cited in the application see summary, introduction and discussion ---	1-33
A	YOU-XUN ZHANG ET AL: "Comparison of the major outer-membrane protein (MOMP) gene of mouse Pneumonitis (MOPN) and hamster SFPD strains of Chlamydia trachomatis with other Chlamydia strains" MOLECULAR BIOLOGY AND EVOLUTION, vol. 10, no. 6, 1 November 1993, pages 1327-1342, XP000561977 cited in the application see the whole document -----	1-33

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/CA 97/00500

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP 0192033 A	27-08-86	AT 143414 T	15-10-96
		DE 3650571 D	31-10-96
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